PRA template 2 (planned introduction of biological control agents)

**Pest Risk Analysis (PRA) for**

**Name of organism: *Scientific name* (English name)**

**Territory: e.g. Cayman Islands Assessment Number: 001/year**

**Date: dd/mm/yyyy Version: 1**

**PRA type: introduction of biological control agent**

**All sections should be completed. If not applicable indicate it**

**Part 1: Initiation**

* 1. **Purpose of planned introduction**

|  |  |
| --- | --- |
|  [ ]  | Biological control of plant pest in greenhouse environment |
|  [ ]  | Biological control of plant pest outside, commercial  |
|  [ ]  | Biological control of plant pest outside, ornamental |
|  [ ]  | Biological control of plant pest outside, environmental |
|  [ ]  | Control agent for invasive alien arthropod  |
|  [ ]  | Control agent for invasive alien plant/weed |
|  [ ]  | Others (please explain) |

* 1. **Summary of assessment results (max. 500 words)**

Give a brief summary of the risks of introduction, establishment, spread, impact and overall risk. Fill this part in at the end of the PRA process, only after you have completed the rest of the PRA template below.

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* 1. **Source of material**

Indicate the country where your material originates from and the importing route towards the territory (e.g. transit)

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* 1. **Importer details**

Company/Institution/Department:

Name and Job Title:

Address:

Phone (office and/or mobile): Email:

* 1. **Assessor details**

Company/Institution/Department:

Name and Job Title:

Address:

Phone (office and/or mobile): Email:

**Part 2: Background**

**2.1 Aim of assessment**

This section is intended to put the new organism(s) in perspective of the wider activities having led to conducting this PRA (e.g. planned usage for the new species, risks and impact caused by target organism; all technical/scientific words must be explained)

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**2.2 Identity**

Identify the organism as fully as possible

**Scientific name (incl. taxonomic authority, date):**

**What is it? (max. 2 sentence description)**

**English name(s):**

**Family:**

**Synonyms:**

**Other taxonomic remarks:**

**2.3 Images of the species if available**

If available, please provide pictures of different stages and habitats

*Figure 1:*

*Figure 2:*

**2.4 Existence of PRAs for this species**

Please indicate if PRAs for this species already exist and which target areas and climatic conditions these cover (for suggestions of websites to check see guidance notes)

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**2.5 Biology/Ecology**

Please provide background information relevant to your application covering the bullet points in the box below whenever applicable; see also guidance notes

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| * Growth form and size:
* Habitat:
* Lifecycle (e.g. reproduction and dispersal):
* Other:
 |

**2.6 What is the current distribution of the species**

**Consider:** native range, history of introduction and invasion outside native range

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**2.7 Is the species intended for augmentative or classical biological control?**

Augmentative is the repeated release for targeted control of pest outbreaks; classical biological control (CBC) becomes self-sustained after agent release

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**2.8 Has any prior host range testing been conducted for the species?** Provide background information about the tests undertaken and/or requirements to perform further tests for the PRA area

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**2.9 If the release of additional complementary control agents for a specific target species is applied for, what is known about synergistic effects of these multiple species?**

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**2.5 Has the species been introduced into the territory before?**

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**Part 3: Establishment and spread**

**3.1 Probability of establishment**

3.1.1 Does the territory provide suitable climatic and habitat conditions for the species to **survive** and **reproduce** under natural conditions unassisted or without human interference (e.g. cultivation, gardens)? **Consider:** climate similarity between the species global range and the PRA area, availability of the habitat conditions required by the species based on its behaviour elsewhere; identify/name specifically the climate/habitat it might survive? Which land-cover? Justify why and provide landmarks as examples); for definition of human interference see guidance notes 3.2.1

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| --- |
| * Survival:
* Reproduction (self-sustaining population):
 |

3.1.2 How likely can the species survive and reproduce only indoors or in similar habitats (e.g. polytunnels, gardens, urban area)? **Consider:** availability of the habitat conditions required by the species based on its behaviour elsewhere; identify/name specifically the conditions it might survive?

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| * Survival:
* Reproduction (self-sustaining population):
 |

3.1.3 Do you plan to put in place any measures to improve establishment of the agent?

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**Summary probability of establishment**

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| --- | --- | --- | --- | --- | --- |
| **Probability of establishment in the wild** | Very unlikely [ ]  | Unlikely [ ]  | Moderately likely [ ]  | Likely [ ]  | Very likely [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |

**3.2 Probability of spread**

3.2.1 What is the potential spread in the territory? **Consider:** rate and distance of spread elsewhere; natural barriers in PRA area, the occurrence of a dispersal vector or commodity;

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| * Self-dispersal:
* Human-aided dispersal:
* Other:
 |

3.2.2 Can the species spread to parts of the territory where to an introduction is not planned or desired? **Consider:** rate and distance of spread elsewhere; natural barriers in PRA area, the occurrence of a dispersal vector or commodity; see also guidance notes 3.3.2

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| * Self-dispersal:
* Direct transport by humans:
* Transport via vehicles (e.g. boat, cars, including tyres):
* Wind drift or via driftwood:
* Water:
* Transport via animals (e.g. berries digested by birds, seeds stuck to wool, etc.):
* Transport with vectors:
* Other:
* How rapidly would the organism spread by natural means?:
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3.2.3 Do you plan to put any measures in place to accelerate the spread of the agent?

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**Summary probability of spread**

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| **How quickly can the species spread (excluding deliberately assisted by humans)** | Less than 10 m/year. Can’t occupy suitable habitats within next 100 yearsVery slowly [ ]  | Between 10 and 100 m per year. Suitable habitats are likely to be occupied between 50 and 100 yearsSlowly [ ]  | Between 100 and 500 m per year. Suitable habitats are likely to be occupied between 50 and 100 yearsModerate pace [ ]  | > 500 m per year Can occupy suitable habits throughout the territory within 5 to 20 yearsQuickly [ ]  | Can occupy suitable habits throughout the territory within 5 yearsVery quickly [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |

**Part 4: Economic and environmental risks of introducing the control agent**

It is important to look at the potential magnitude of the consequences, and to look at distribution effects (who bears risks). **Consider only the adverse or negative effects** in this section of the application. Consider potential maximum impact. Positive effects are considered in part 6 (benefits).

Please, **complete this section referencing supporting material**. Please, cite the material in the text and provide a description of where the information in the application has been sourced in the list of references (e.g. from in-house research, independent research, technical literature, community or other consultation, and provide that information with this application). If the information available is scarce, include information about related species (e.g. same genus or family) clearly indicating that it does not correspond to the organism being assessed.

**4.1 Risks recorded from outside the territory, which are applicable to the territory**

4.1.1 Is there any negative impact of the species on the economy, environment or public health recorded from any parts of its current distribution? Please provide a summary of the available information

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**4.2 Economic and socioeconomic non-target effects**

4.2.1 Could the species have any negative effect on economic activities in the territory? Please include any information about specific assessments from areas outside the PRA area including experiences with closely related species with relevance for the area of interest (**consider:** reduction in crop yield or quality; reduction in prices or demand, including export markets; increase in production costs (including costs of control); vectoring of other pests of economic importance; extent of phytosanitary regulations imposed by importing countries)

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| --- |
| * Agriculture:
* Livestock:
* Fisheries:
* Aquaculture:
* Forestry:
* Tourism:
* Recreational potential:
* Infrastructure:
* Employment rates:
* Other:
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4.2.2 Are there any risks of impacts on cultural valuable species, habitats, landscapes, practices or other values? Please include any information about specific assessments from areas outside the PRA area including experiences with closely related species with relevance for the area of interest

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| * Competition with or impact on cultural valuable species:
* Impact on historically valuable practices:
* Change of landscape:
* Value of landscape for recreation:
* Other:
 |

**Summary economic and socioeconomic non-target effects**

Make sure the summary score is well linked with the information reported above so the scoring is fully justified (for more information risk levels see guidance notes)

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| --- | --- | --- | --- | --- | --- |
| **Risk of socioeconomic impact**  | Very small [ ]  | Small [ ]  | Medium [ ]  | Large [ ]  | Very large [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |

**4.3 Impact on public health**

4.3.1 Could there be any impact on public health? **Consider:** Can the species be disease-causing or be a parasite, or be a vector or reservoir for human diseases? Identification of potential health hazards and analysis of the risks posed to staff operatives exposed when handling biological control agents under laboratory, production and application conditions.

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**Summary public health non-target effects**

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| --- | --- | --- | --- | --- | --- |
| **Risk of impact on public health** | Very small [ ]  | Small [ ]  | Medium [ ]  | Large [ ]  | Very large [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |

**4.4 Impact on animal health**

4.4.1 Could there be any impact on animal health? **Consider:** Can the species be disease-causing or be a parasite, or be a vector or reservoir for animals?

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**Summary animal health non-target effects**

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| --- | --- | --- | --- | --- | --- |
| **Risk of impact on animal health** | Very small [ ]  | Small [ ]  | Medium [ ]  | Large [ ]  | Very large [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |

**4.5. Environmental and ecosystem non-target effects**

4.5.1 Are there any threats to native or endemic species? Indicate direct effects on native species; note any aspects related to pollination of native species should be covered in the following question (**consider**: threat to endangered species; impact on keystone species; changed community structure; hybridization with native species)

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4.5.2 Will they be predated on or parasitized by any other native species in the PRA area?

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4.5.3 What is the level of potential negative impact on ecosystem services in the PRA area? (**consider**: provisioning services (freshwater, wood and fibre, fuel); regulating services (soil formation, natural hazards, water and air quality); cultural services (aesthetic, educational, recreational, spiritual); supporting services (nutrient cycling, habitat stability; pollination) see also guidance notes 4.5.2

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**Summary environmental** **non-target effects**

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| --- | --- | --- | --- | --- | --- |
| **Risk of environmental impact**  | Very small [ ]  | Small [ ]  | Medium [ ]  | Large [ ]  | Very large [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |

**Part 5: Pest risk management**

**5.1 Pest risk management of species associated with the control agent**

5.1.1 What species have reported to be associated with the control agent?

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5.1.2 Which measures do you suggest to put in in place to prevent introduction and establishment of associated species? **Consider**: inspection of cultures; trapping in and around quarantine facilities, etc.

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| * **Pre-border:** (information on any phytosanitary measures taken prior to shipment should be provided)
* **At the border:**
* **Post-border:**
* **Other:** (provide additional information)
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**Summary efficacy prevention measures**

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| --- | --- | --- | --- | --- | --- |
| **Probability of prevention measures being effective** | Very unlikely [ ]  | Unlikely [ ]  | Moderately likely [ ]  | Likely [ ]  | Very likely [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |

**5.2 Pest risk management for biological control agent**

This section covers any of the available or proposed management options for the control of the agent itself after its release. Consider both areas where the release has been intended and areas of the territory to which a spread is not intended.

5.2.1 What existing control measures available in the territory for the control of other pests can provide adequate control to mitigate the risks described above? **Consider:** cultural practices; pest control programmes; natural enemies; please link to effectiveness, practicality, costs, negative consequences and acceptability

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| * Eradication:
* Containment to prevent further spread:
* Mechanical/chemical control:
* Biological control:
* Other (provide additional information):
 |

5.2.2 What additional control measures currently not available in the territory can provide adequate control to mitigate the risks described above? **Consider:** cultural practices; pest control programmes; natural enemies; please link to effectiveness, practicality, costs, negative consequences and acceptability

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| * Eradication:
* Containment to prevent further spread:
* Mechanical/chemical control:
* Biological control:
* Other (provide additional information):
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**Summary efficacy of current control measures from 5.2.1**

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| --- | --- | --- | --- | --- | --- |
| **Probability of current control measures being effective** | Very unlikely [ ]  | Unlikely [ ]  | Moderately likely [ ]  | Likely [ ]  | Very likely [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |

**Summary efficacy of proposed control measures from 5.2.2**

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| --- | --- | --- | --- | --- | --- |
| **Probability of suitable future control measures being effective** | Very unlikely [ ]  | Unlikely [ ]  | Moderately likely [ ]  | Likely [ ]  | Very likely [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |

**Part 6: Costs and benefits**

Provide information of the benefits (positive effects) and costs of the planned introduction. It is important to look at distribution effects (who/what bears the risk), likelihood of occurrence (probability) and the potential magnitude. Please, complete this section referencing supporting material. Please, provide a description of where the information in the application has been sourced from (e.g. from in-house research, independent research, technical literature, community or other consultation, and provide that information with this application). This section should cover the costs and benefits anticipated by the introduction of the organism(s) but not any costs associated with direct or indirect risks (negative effects), which have been assessed in part 4.

6.1.1 What are the benefits of introducing the species/commodity? **Consider:** Income generated from introduced organism(s); yield loss prevented; etc.; diminished risks caused by target organism; consider not only economic benefits but also benefits for the environment and society

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6.1.2 How likely will the agent impact successfully on the target species? If available, provide references to previous releases of this or closely related species

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**Summary benefits**

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| **Commercial trade benefits** | Very small [ ]  | Small [ ]  | Medium [ ]  | Large [ ]  | Very large [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |
| **Benefits for agriculture and livestock**  | Very small [ ]  | Small [ ]  | Medium [ ]  | Large [ ]  | Very large [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |
| **Benefits for public health**  | Very small [ ]  | Small [ ]  | Medium [ ]  | Large [ ]  | Very large [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |
| **Benefits for ecosystem services** | Very small [ ]  | Small [ ]  | Medium [ ]  | Large [ ]  | Very large [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |
| **Benefits for the protection of native/endemic species**  | Very small [ ]  | Small [ ]  | Medium [ ]  | Large [ ]  | Very large [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |
| **Benefits for pollination, bee keeping** | Very small [ ]  | Small [ ]  | Medium [ ]  | Large [ ]  | Very large [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |
| **other** | Very small [ ]  | Small [ ]  | Medium [ ]  | Large [ ]  | Very large [ ]  |
| **Confidence** | High confidence [ ]  | Medium confidence [ ]  | Low confidence [ ]  |  |  |

6.1.3 What are the costs for introducing the species/commodity? **Consider:** costs for release and/or monitoring programme, etc.

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6.1.4 Are there any plans for post release monitoring of establishment and spread? **Consider**: costs involved.

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**6 1.5 Cost-benefit analysis** This part is only optional; a detailed C & B analysis is beyond the scope of this PRA but any information available, which can be included in the table below may help to address potential conflicts of interest and facilitate the final decision on the overall outcome.

This table should summarize the costs and benefits anticipated during and after the introduction of the organism(s) but not any costs associated with direct or indirect risks (negative effects). For each cost or benefit add a new row estimating approximately its monetary value within an uncertainty range (error) and where and when it will occur. Please bear in mind that often some of the benefits as well as negative impacts cannot be translated into monetary values, but can be of equal importance for decision making.

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|  | **Name of benefit/cost**  | **Best estimate**  | **Uncertainty range**  | **Spatial distribution**  | **Temporal distribution**  |
| **Direct monetary benefits**  |  |  |  |  |  |
| **Direct monetary costs**  |  |  |  |  |  |
| **Indirect costs**  |  |  |  |  |  |

**Part 7: Planned shipment, release and monitoring of establishment and impact**

Provide information of the benefits (positive effects) and costs of the planned introduction. It is important to look at distribution effects (who/what bears the risk), likelihood of occurrence (probability) and the potential magnitude. Please, complete this section referencing supporting material. Please, provide a description of where the information in the application has been sourced from (e.g. from in-house research, independent research, technical literature, community or other consultation, and provide that information with this application). This section should cover the costs and benefits

**7.1. Shipment**

7.1.1 What is the source of the organism? **Consider:** accurate information on locations of field sites

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7.1.2 What is the nature of the material? **Consider:** how it will be packaged and transported

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7.1.3 Are there any procedures in place to identify accurately and, if necessary, eliminate from the culture the host upon which the biological control agent or beneficial organism was cultured?

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7.1.4 Are there any procedures in place to identify accurately and, if necessary, eliminate from the culture parasitoids, hyperparasitoids, pathogens and other contaminants?

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**7.2. Release**

7.2.1 What are the planned procedures to release the biological control agent?

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7.2.2 Who will carry out the work? **Consider:** mass rearing, release, monitoring, etc. Provide details of their qualifications in this area

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7.2.3 Where will the work be done? Give details of the facilities and equipment available.

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7.2.4 How will the work be funded?

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7.2.2 Where will the work be done? Give details of the facilities and equipment available.

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7.3 Post-release-monitoring. Provide details how you plan to monitor the target pest and biological control agent post-release, including for how long this will continue.

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**Other information**

Add here any further information you wish to include in this application, including if there are any ethical considerations that you are aware of in relation to your application.

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**Is the import of the control agent approved?**

(for further explanation see note-box below)

No [ ]  (final rejection) No [ ]  (result may change after a more detailed PRA) Yes [ ]

**Reasons why a full PRA can lead to a reconsideration of the outcome given above**

Please consider additional information, which a more detailed PRA may be able to provide

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**References and information sources consulted**

Occurrences from Gbif.org

www.Palmpedia.net

Florida University

**Appendices and referenced material (if any) and glossary (if required)**

If this is an application made for the deliberate introduction of a species/commodity, it is recommended that you contact a member of the Biosecurity team as early in the application process as possible. Biosecurity can assist you with any questions you have during the preparation of your application including providing advice on any consultation requirements.

Unless otherwise indicated, all sections of this form must be completed for the application to be formally received and assessed. If a section is not relevant to your application, please provide a comprehensive explanation as to why this does not apply.

Commercially sensitive information must be included in an appendix to this form, and be identified as confidential. If you consider any information to be commercially sensitive, please indicate this in the relevant section of this form, and cross reference to where that information is located in the confidential appendix.

Any information you supply to Biosecurity prior to formal lodgement of your application will not be publicly released. Following formal lodgement of your application any information in the body of this application form and any non-confidential appendices will become publicly available.